

## Lineage Cell Therapeutics (NYSE/LCTX)

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### BUY: Good Data Continues to be Visualized

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Lineage announced additional positive data from the Phase 1/2a study with OpRegen (a retinal pigment epithelium cell transplant). The data continues to demonstrate improvements in visual acuity, pointing to what may be a robust new therapy for Dry Age-Related Macular Degeneration.

### Investment Highlights

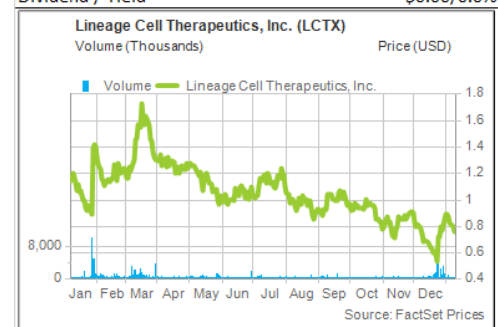
**Five Lines- That Ain't Bad.** The first Cohort 4 patient, which was treated with both a new subretinal delivery system and the Company's new thaw-and-inject (TAI) formulation of OpRegen has continued to demonstrate notable improvements in vision, having gained 25 readable letters (or five lines) six months following administration of OpRegen RPE cells, as assessed by the Early Treatment Diabetic Retinopathy Scale (ETDRS). The company helped us understand how to interpret this data as an improvement in visual acuity from a baseline of 20/250 to 20/100 in the treated eye. Management also notes that a second Cohort 4 patient has been similarly dosed, and though early, the patient has shown a small improvement in visual acuity in the treated eye at just 14 days following treatment. To date, improvements have become most evident approximately three to six months after treatment. Both patients had rapid healing at the surgical site with no unexpected complications or any serious adverse events.

**Background: What is OpRegen?** It's a suspension of retinal pigment epithelial (RPE) cells that are derived from pluripotent stem cells. RPE cells form the back lining of the retina and support the function of photoreceptors (rods and cones). RPE cells can be damaged and lost in various forms of retinal degeneration. The OpRegen approach is to replace damaged or lost RPE cells and possibly slow disease progression and/or preserve or restore visual function. It is currently in a Phase 2/2a clinical trial for the treatment of the dry form of AMD. AMD affects approximately 1.6 million newly diagnosed people annually in the U.S. and is the leading cause of blindness in people over the age of 60. Approximately 90 percent of AMD patients suffer from the dry form (dry-AMD), for which there are no FDA-approved therapies.

**Three Years and Counting.** Previously reported structural improvements in the retina and decreases in drusen density observed in some patients have been maintained and there is evidence of the continued presence of transplanted OpRegen cells in patients treated in the first three cohorts, **some over three years following administration.**

**Evidence that the Delivery System Works too.** Of note, the first patient successfully dosed using the Orbit Subretinal Delivery System (Orbit SDS) as well as a new Thaw-and-Inject (TAI) formulation of OpRegen is also demonstrating signs of improved visual acuity having gained initially 13 letters in the three months following administration as assessed by ETDRS. The most recent data highlighted above continues to support the use of RPE cells.

|   |               |               |               |             |
|---|---------------|---------------|---------------|-------------|
| Current Price                           |               |               |               | \$0.76      |
| Price Target                            |               |               |               | \$6.00      |
| <b>Estimates</b>                        | <b>F2018A</b> | <b>F2019E</b> | <b>F2020E</b> |             |
| <b>Revenues (\$000s)</b>                | \$ 4,908      | \$ 4,957      | \$ 5,007      |             |
| 1Q March                                | \$ 701        | \$ 928        | \$ 1,152      |             |
| 2Q June                                 | \$ 2,547      | \$ 779        | \$ 1,202      |             |
| 3Q September                            | \$ 982        | \$ 567        | \$ 1,252      |             |
| 4Q December                             | \$ 678        | \$ 2,683      | \$ 1,402      |             |
|   | <b>F2018A</b> | <b>F2019E</b> | <b>F2020E</b> |             |
| <b>EPS (diluted)</b>                    | \$ (0.44)     | \$ (0.63)     | \$ (0.15)     |             |
| 1Q March                                | \$ (0.51)     | \$ (0.30)     | \$ (0.03)     |             |
| 2Q June                                 | \$ (0.04)     | \$ (0.20)     | \$ (0.04)     |             |
| 3Q September                            | \$ 0.53       | \$ (0.11)     | \$ (0.04)     |             |
| 4Q December                             | \$ (0.41)     | \$ (0.02)     | \$ (0.04)     |             |
| <b>EBITDA/Share</b>                     | \$0.00        | (\$0.20)      | (\$0.15)      |             |
| <b>EV/EBITDA (x)</b>                    | -             | 486           | 634           |             |
| <b>Stock Data</b>                       |               |               |               |             |
| 52-Week Range                           | \$0.53        | -             | \$1.73        |             |
| Shares Outstanding (mil.)               |               |               |               | 149.8       |
| Market Capitalization (mil.)            |               |               |               | \$114       |
| Enterprise Value (mil.)                 |               |               |               | \$95        |
| Debt to Capital                         |               |               |               | 0%          |
| Book Value/Share                        |               |               |               | \$1.28      |
| Price/Book                              |               |               |               | 1.2         |
| Average Three Months Trading Volume (K) |               |               |               | 174         |
| Insider Ownership                       |               |               |               | 1.2%        |
| Institutional Ownership                 |               |               |               | 48.7%       |
| Short interest (mil.)                   |               |               |               | 0.0         |
| Dividend / Yield                        |               |               |               | \$0.00/0.0% |



**We view Lineage as a new company invigorated by a new management team and a focused vision on how to walk forward.** The two leading programs, Age-related Macular Degeneration (AMD) and Spinal Cord Injury (SCI) are primed to advance. These lead programs (AMD and SCI) involve the application of allogeneic cells to treat the disease and acute injury. We see the lead product and the performance driver for the company as OpRegen for Macular Degeneration, as this indication is a multi-billion-dollar market opportunity.

**Lineage's second lead products is OPC1 for spinal cord injury.** This is an oligodendrocyte progenitor cell population derived from pluripotent stem cells that are currently in a Phase 2 clinical trial for spinal cord injuries (SCI) with support from the California Institute for Regenerative Medicine (CIRM). The Phase 1/2 study is in 25 patients who are set to receive up to 20M cells. Thus far, the therapy has shown a good safety profile, evidence of durable cell engraftment and promising motor recovery.

**Recent transactions & finances.** Lineage, formerly, BioTime, was for years was a complex company with many different operating divisions, which translated both into a high expenditures (burn) rate and in our opinion, created a lack of focus. In more recent times, and as part of an effort to unlock value and increase focus BioTime spun-out these several business units. These include Asterias, AgeX and OncoCyte. As a result, BioTime still owns significant amounts of these companies. BioTime this past summer began efforts to monetize its stake where appropriate. The most recent of these was an announced sale last week of 2.4 million shares of common stock of OncoCyte (OCX-Not Rated) at a price to buyers of \$2.156 per share, raising approximately \$5 million. Following the completion of the sale, Lineage will own approximately 6M shares of OncoCyte valued at approximately \$13.5M. The company also holds a convertible promissory note from Juvenescence (private) valued at \$23 million (profiled below).

- In August of 2018 BioTime entered into a Stock Purchase Agreement with Juvenescence Limited and AgeX Therapeutics, Inc., (AGE: Not Rated) pursuant to which BioTime sold 14.4 million shares of the common stock of AgeX to Juvenescence for \$3.00 per share. The Purchase Agreement set a purchase price for the AgeX Shares of \$43.2 million of which \$10.8 million was paid upon the closing of the Juvenescence Transaction and \$10.8 million was paid on November 2, 2018, with the remaining \$21.6 million to be paid under the terms of an unsecured convertible promissory note. Juvenescence's obligation to pay the second installment of \$10.8 million is secured by a pledge of 3.6 million AgeX Shares.
- In addition to AgeX, BioTime also has significant equity holdings in Asterias Biotherapeutics, Inc. (Asterias AST Not Rated), where BioTime owns approximately 39% of the company, and the remainder of which was acquired back by BioTime (announced Nov 7, 2018), and OncoCyte Corporation (OncoCyte OCX-Not Rated). OncoCyte is developing confirmatory diagnostic tests for lung cancer utilizing novel liquid biopsy technology.

**Valuation:** Our valuation for Lineage is principally driven by the opportunity in Dry-AMD, narrowed down further by a sub-set of patients with GA. Our model does include modest revenues from the SCI product and from Renevia, but as previously stated, the majority of the valuation is driven by OpRegen. We assume just a 30% probability of success, in Dry-AMD and SCI, which drives our \$6.00 target.

**Exhibit 1. Geographic Dry-AMD market model.**

| Age-Related Macular Degeneration                           | 2016A       | 2017A       | 2018E       | 2019E       | 2020E       | 2021E       | 2022E       | 2023E         | 2024E           | 2025E           | 2026E           | 2027E           | 2028E           | 2029E           |
|--|-------------|-------------|-------------|-------------|-------------|-------------|-------------|---------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Prevalence of AMD  | 30,000,000  | 31,600,000  | 33,200,000  | 34,800,000  | 36,400,000  | 38,000,000  | 39,600,000  | 41,200,000    | 42,800,000      | 44,400,000      | 46,000,000      | 47,600,000      | 49,200,000      | 49,200,000      |
| Growth Rate  | 1,600,000   | 1,600,000   | 1,600,000   | 1,600,000   | 1,600,000   | 1,600,000   | 1,600,000   | 1,600,000     | 1,600,000       | 1,600,000       | 1,600,000       | 1,600,000       | 1,600,000       | 1,600,000       |
| 25% of Patients diagnosed with specific geographic atrophy | 7,500,000   | 7,900,000   | 8,300,000   | 8,700,000   | 9,100,000   | 9,500,000   | 9,900,000   | 10,300,000    | 10,700,000      | 11,100,000      | 11,500,000      | 11,900,000      | 12,300,000      | 12,300,000      |
| 75% Patients eligibility, with insurance who have access   | 5,625,000   | 5,925,000   | 6,225,000   | 6,525,000   | 6,825,000   | 7,125,000   | 7,425,000   | 7,725,000     | 8,025,000       | 8,325,000       | 8,625,000       | 8,925,000       | 9,225,000       | 9,225,000       |
| Market Share   | 0%          | 0%          | 0%          | 0%          | 0%          | 0%          | 0%          | 2%            | 3%              | 4%              | 5%              | 6%              | 7%              | 8%              |
| Total Patients for therapy                                 | -           | -           | -           | -           | -           | -           | -           | 154,500       | 240,750         | 333,000         | 431,250         | 535,500         | 645,750         | 738,000         |
| cost of therapy  | -           | -           | -           | -           | -           | 7,500       | 7,425       | 7,277         | 7,131           | 6,988           | 6,849           | 6,712           | 6,712           | 6,712           |
| change in cost of therapy                                  | 1.00%       | 1.0%        | 1.0%        | 1.0%        | 1.0%        | -1.0%       | -1.0%       | -2.0%         | -2.0%           | -2.0%           | -2.0%           | -2.0%           | 0.0%            | 0.0%            |
| number of treatments per patient                           | 2           | 2           | 2           | 2           | 2           | 2           | 2           | 2             | 2               | 2               | 2               | 2               | 2               | 2               |
| Probability of Success                                     | 30%         | 30%         | 30%         | 30%         | 30%         | 30%         | 30%         | 30%           | 30%             | 30%             | 30%             | 30%             | 30%             | 30%             |
| <b>Total Revenues (millions)</b>                           | <b>\$ -</b> | <b>\$ -</b> | <b>\$ -</b> | <b>\$ -</b> | <b>\$ -</b> | <b>\$ -</b> | <b>\$ -</b> | <b>\$ 675</b> | <b>\$ 1,030</b> | <b>\$ 1,396</b> | <b>\$ 1,772</b> | <b>\$ 2,156</b> | <b>\$ 2,600</b> | <b>\$ 2,972</b> |

Source: Dawson James.

**Exhibit 2. OPC1 SCI market model.**

| Spinal Paralysis (OPC1)                   | 2016A       | 2017A       | 2018A       | 2019E       | 2020E       | 2021E       | 2022E       | 2023E        | 2024E        | 2025E        | 2026E        | 2027E        | 2028E         | 2029E         |
|---|-------------|-------------|-------------|-------------|-------------|-------------|-------------|--------------|--------------|--------------|--------------|--------------|---------------|---------------|
| Acute spinal cord injury (C4-C7 ASIA A-C) | 6,000       | 6,060       | 6,121       | 6,182       | 6,244       | 6,306       | 6,369       | 6,433        | 6,497        | 6,562        | 6,628        | 6,694        | 6,761         | 6,829         |
| Growth Rate of incidence                  | 1%          | 1%          | 1%          | 1%          | 1%          | 1%          | 1%          | 1%           | 1%           | 1%           | 1%           | 1%           | 1%            | 1%            |
| Market Share (%): SCI Patients            | 0%          | 0%          | 0%          | 0%          | 0%          | 0%          | 2%          | 4%           | 6%           | 10%          | 15%          | 30%          | 40%           | 40%           |
| Target Patient Population                 | 0           | 0           | 0           | 0           | 0           | 6,306       | 6,369       | 6,433        | 6,497        | 6,562        | 6,628        | 6,694        | 6,761         | 6,829         |
| Patients who have access, insurance- 75%  | 0           | 0           | 0           | 0           | 0           | 4,730       | 4,777       | 4,825        | 4,873        | 4,922        | 4,971        | 5,021        | 5,071         | 5,121         |
| Unit Cost of Therapy                      | -           | -           | -           | -           | \$ 100,000  | \$ 100,000  | \$ 101,000  | \$ 102,010   | \$ 103,030   | \$ 104,060   | \$ 105,101   | \$ 106,152   | \$ 106,152    | \$ 106,152    |
| Change in Cost of Therapy                 | 1%          | 1%          | 1%          | 1%          | 1%          | 0%          | 0%          | 1%           | 1%           | 1%           | 1%           | 1%           | 1%            | 1%            |
| Treated Patients                          | -           | -           | -           | -           | -           | -           | 96          | 193          | 292          | 492          | 746          | 1,506        | 2,028         | 2,049         |
| Number of Units per Patient               | 1           | 1           | 1           | 1           | 1           | 1           | 1           | 2            | 2            | 2            | 2            | 2            | 2             | 2             |
| Probability of Success                    | 30%         | 30%         | 30%         | 30%         | 30%         | 30%         | 30%         | 30%          | 30%          | 30%          | 30%          | 30%          | 30%           | 30%           |
| <b>Total Revenues (Millions)</b>          | <b>\$ -</b> | <b>\$ -</b> | <b>\$ -</b> | <b>\$ -</b> | <b>\$ -</b> | <b>\$ -</b> | <b>\$ 3</b> | <b>\$ 12</b> | <b>\$ 18</b> | <b>\$ 30</b> | <b>\$ 47</b> | <b>\$ 95</b> | <b>\$ 129</b> | <b>\$ 130</b> |

Source: Dawson James.

**Exhibit 3. Renevia market model. We expect BioTime to out-license this product.**

| Renevia (EU) Estimates                            | 2016A       | 2017A       | 2018A       | 2019E       | 2020E       | 2021E       | 2022E       | 2023E        | 2024E        | 2025E        | 2026E        | 2027E        | 2028E        | 2029E        |
|---|-------------|-------------|-------------|-------------|-------------|-------------|-------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| HIV Prevalence                                    | 2,000,000   | 1,980,000   | 1,960,200   | 1,940,598   | 1,921,192   | 1,901,980   | 1,882,960   | 1,864,131    | 1,845,489    | 1,827,034    | 1,808,764    | 1,790,677    | 1,772,770    | 1,755,042    |
| Growth Rate of incidence                          | 1%          | -1%         | -1%         | -1%         | -1%         | -1%         | -1%         | -1%          | -1%          | -1%          | -1%          | -1%          | -1%          | -1%          |
| Patients in HEART or Other Regimens               | 1,500,000   | 1,485,000   | 1,470,150   | 1,455,449   | 1,440,894   | 1,426,485   | 1,412,220   | 1,398,098    | 1,384,117    | 1,370,276    | 1,356,573    | 1,343,007    | 1,329,577    | 1,316,282    |
| Patients with HIV associated Lipid Dysmetabolism  | 150,000     | 148,500     | 147,015     | 145,545     | 144,089     | 142,649     | 141,222     | 139,810      | 138,412      | 137,028      | 135,657      | 134,301      | 132,958      | 131,628      |
| Market Share (%)                                  | 0%          | 0%          | 0%          | 0%          | 2%          | 3%          | 5%          | 10%          | 12%          | 14%          | 15%          | 15%          | 15%          | 15%          |
| Target Patient Population                         | 0           | 0           | 0           | 0           | 2,882       | 4,279       | 7,061       | 13,981       | 16,609       | 19,184       | 20,349       | 20,145       | 19,944       | 19,744       |
| Patients who have access, viable & insurance- 75% | 0           | 0           | 0           | 0           | 1,441       | 3,210       | 5,296       | 10,486       | 12,457       | 14,388       | 15,261       | 15,109       | 14,958       | 14,808       |
| Unit Cost of Therapy                              | -           | -           | -           | -           | \$ 7,500    | \$ 7,575    | \$ 7,651    | \$ 7,727     | \$ 7,803     | \$ 7,883     | \$ 7,961     | \$ 8,041     | \$ 8,041     | \$ 8,041     |
| Change in Cost of Therapy                         | 1%          | 1%          | 1%          | 1%          | 1%          | 1%          | 1%          | 1%           | 1%           | 1%           | 1%           | 1%           | 1%           | 1%           |
| Treated Patients                                  | -           | -           | -           | -           | -           | 96          | 265         | 1,049        | 1,495        | 2,014        | 2,289        | 2,266        | 2,244        | 2,221        |
| Number of Units per Patient                       | 1           | 1           | 1           | 1           | 1           | 1           | 1           | 2            | 2            | 2            | 2            | 2            | 2            | 2            |
| Probability of Success                            | 75%         | 75%         | 75%         | 75%         | 75%         | 75%         | 75%         | 75%          | 75%          | 75%          | 75%          | 75%          | 75%          | 75%          |
| <b>Total Revenues (Millions)</b>                  | <b>\$ -</b> | <b>\$ -</b> | <b>\$ -</b> | <b>\$ -</b> | <b>\$ -</b> | <b>\$ 1</b> | <b>\$ 2</b> | <b>\$ 12</b> | <b>\$ 17</b> | <b>\$ 24</b> | <b>\$ 27</b> | <b>\$ 27</b> | <b>\$ 27</b> | <b>\$ 27</b> |

Source: Dawson James.

**Modeling Assumptions:**

- OpRegen: We assume a 30% probability of success for OpRegen in Dry-Age related Macular degeneration. We model the market as targeting patients with geographic atrophy (25% of the dry-AMD market). Additionally, we assume 75% of the market has access (insurance and represent other-wise viable candidates). We assume two doses of therapy (each eye) with a price of just \$7,500 per unit. We assume the product based on an abbreviated Phase 2/3 study could reach the market by 2023. Our model is U.S. based. The opportunity in Europe is equal to, or greater than, the U.S. opportunity. Europe is excluded for conservatism.
- OPC1: We assume a 30% probability of success for OPC1 in Spinal Cord Injury (SCI) and a \$100k price. While the SCI market is estimated in the U.S. to be close to 15,000 injuries a year, we narrow the market to C4-C7 injuries, ASIA-A through C, for 6,000 annually. We assume the product based on an abbreviated Phase 2/3 study could reach the market by 2023. We assign a 30% probability of success to our therapeutic model for OPC1 in spinal cord injury in the U.S.
- Renevia: We include Renevia in our model. However, we note that it is likely this product is divested. One way to consider its value is as a non-dilutive financing. For valuation purposes, our analysis of the market assumes 150,000 target patients, a price of \$7,500 per unit. With modest market penetration (15%) this could be \$25M annual product in Europe.
- We have not included any other product values in our model for BioTime. This includes VAC2 currently in development by Asterias for non-small cell lung cancer. VAC2 is an allogenic dendritic cell designed to stimulate an immune response to an antigen present in 85% plus of cancers. We assume BioTime upon closing of the merger will divest this program (versus keeping it and investing limited resources).
- We do not place any value in our model on AgeX, and Oncocyte minority-owned positions.

**Valuation.** It is difficult to predict probabilities of success from phase 1/2a data. As such, we use a low probability of success for OpRegen and OPC1 of just 30%. We model OPGEN in dry macular degeneration with geographic atrophy, as well as OPC1 in SCI, although the real driver is dry-AMD as a result of the large market size. We do not model any revenues from these programs until 2022. Our models also factor in funding (dilution) using a 2029 share count of 293M shares versus the last reported share count of ~150M.

We triangulate FCF, discounted EPS, and sum-of-the-parts models and select a 30% discount rate across these three models. The 30% discount is based on the early nature of the company's products. For companies with high visibility and positive cash flow we typically use a discount rate of 10%, for companies with products generating revenues, approaching cash flow break even or better, we typically use a 15% discount rate. We then average and equally weight each model, rounded to the nearest whole number, to derive a net present value, which is where we set our target price. Investors should recognize that this modeling exercise, which is projected ten years forward is based on the current (limited) data and estimates. As such our ability to predict a 12-month target is strained. The price of the stock is likely to be driven in the near term by factors such as news flow, early trial data, and cyclic concerns of financings (dilution). One possible catalyst may be the approval of Renevia in Europe which could lead to an out-license deal that could bring in additional capital to the company. We also see value in the ownership stakes of Oncocyte and AgeX, but we exclude this from our valuation metrics.

#### Exhibit 4. Free Cash Flow Model.

|              |      |
|--------------|------|
| Average      | 6.0  |
| Price Target | 7.0  |
| Year         | 2020 |

##### DCF Valuation Using FCF (mln):

| units ('000)          | 2018E     | 2019E    | 2020E    | 2021E    | 2022E    | 2023E   | 2024E   | 2025E   | 2026E     | 2027E     | 2028E     | 2029E     |
|-----------------------|-----------|----------|----------|----------|----------|---------|---------|---------|-----------|-----------|-----------|-----------|
| EBIT                  | (47,130)  | (8,789)  | (26,985) | (41,943) | (77,169) | 405,270 | 685,746 | 982,683 | 1,388,264 | 2,239,614 | 2,214,281 | 2,529,676 |
| Tax Rate              | 0%        | 0%       | 0%       | 0%       | 0%       | 0%      | 0%      | 10%     | 15%       | 20%       | 25%       | 28%       |
| EBIT (1-t)            | (47,130)  | (8,789)  | (26,985) | (41,943) | (77,169) | 405,270 | 685,746 | 884,414 | 1,180,024 | 1,791,691 | 1,660,711 | 1,821,367 |
| CapEx                 | (9,704)   | -        | -        | -        | -        | -       | -       | -       | -         | -         | -         | -         |
| Depreciation          | (794)     | -        | -        | -        | -        | -       | -       | -       | -         | -         | -         | -         |
| Change in NWC         | -         | -        | -        | -        | -        | -       | -       | -       | -         | -         | -         | -         |
| FCF                   | (57,628)  | (8,789)  | (26,985) | (41,943) | (77,169) | 405,270 | 685,746 | 884,414 | 1,180,024 | 1,791,691 | 1,660,711 | 1,821,367 |
| PV of FCF             | (74,916)  | (11,426) | (26,985) | (32,264) | (45,662) | 184,465 | 240,099 | 238,199 | 244,473   | 285,535   | 203,586   | 171,754   |
| Discount Rate         | 30%       |          |          |          |          |         |         |         |           |           |           |           |
| Long Term Growth Rate | 1%        |          |          |          |          |         |         |         |           |           |           |           |
| Terminal Cash Flow    | 6,343,381 |          |          |          |          |         |         |         |           |           |           |           |
| Terminal Value YE2027 | 598,178   |          |          |          |          |         |         |         |           |           |           |           |
| NPV                   | 2,061,378 |          |          |          |          |         |         |         |           |           |           |           |
| NPV-Debt              | -         |          |          |          |          |         |         |         |           |           |           |           |
| Shares out ('000)     | 293,690   |          | 2029E    |          |          |         |         |         |           |           |           |           |
| NPV Per Share         | 7.0       |          |          |          |          |         |         |         |           |           |           |           |

Source: Dawson James.

#### Exhibit 5. Discounted-EPS Model.

|                   |      |
|-------------------|------|
| Current Year      | 2020 |
| Year of EPS       | 2029 |
| Earnings Multiple | 10   |
| Discount Factor   | 30%  |
| Selected Year EPS | 6.79 |
| NPV               | 6.4  |

|                   |    | Discount Rate and Earnings Multiple Varies, Year is Constant |        |       |       |       |       |
|-------------------|----|--|--------|-------|-------|-------|-------|
|                   |    | 5%   | 10%    | 15%   | 20%   | 25%   | 30%   |
| Earnings Multiple | 2  | 8.75   | 5.76   | 3.86  | 2.63  | 1.82  | 1.28  |
|                   | 5  | 21.88  | 14.40  | 9.65  | 6.58  | 4.56  | 3.20  |
|                   | 10 | 43.77  | 28.79  | 19.30 | 13.16 | 9.11  | 6.40  |
|                   | 15 | 65.65  | 43.19  | 28.95 | 19.74 | 13.67 | 9.60  |
|                   | 20 | 87.53  | 57.59  | 38.60 | 26.32 | 18.23 | 12.80 |
|                   | 25 | 109.41   | 71.98  | 48.25 | 32.90 | 22.78 | 16.01 |
|                   | 30 | 131.30   | 86.38  | 57.90 | 39.48 | 27.34 | 19.21 |
|                   | 35 | 153.18   | 100.78 | 67.55 | 46.05 | 31.89 | 22.41 |

Source: Dawson James.

#### Exhibit 6. Sum-of-the-Parts Model.

|                                 | LT Gr | Discount Rate | Yrs to Mkt | % Success | Peak Sales (M) | NPV      |
|---------------------------------|-------|---------------|------------|-----------|----------------|----------|
| <b>Spinal Cod Paralysis</b>     | 1%    | 30%           | 3          | 30%       | \$222          | \$765    |
| NPV                             |       |               |            |           |                | \$0.25   |
| <b>Dry Macular Degeneration</b> | 1%    | 30%           | 3          | 30%       | \$5,052        | \$17,421 |
| NPV                             |       |               |            |           |                | \$5.67   |
| <b>Renevia</b>                  | 1%    | 30%           | 2          | 50%       | \$40           | \$139    |
| NPV                             |       |               |            |           |                | \$0.10   |
| Net Margin                      |       |               |            |           |                | 70%      |
| Shares Outstanding (M) in 2029E |       |               |            |           |                | 294      |
| Total                           |       |               |            |           |                | \$6.0    |

Source: Dawson James.

## Risk Analysis

**Clinical and regulatory risk.** Lineage is currently in a Phase 1/2a clinical trial in both of its pipeline products focused on spinal cord injury and macular degeneration. There is no assurance that either product will be approved for any additional indications and even if approved, will be reimbursed by insurance or successfully commercialized.

**Commercial risk.** The focus of the company is on successfully developing their products and eventually bringing them to the mass market. It is important to note that the market opportunity in macular degeneration is large and may take precedence over that of spinal cord injury opportunity. We can make no assurances that the company will be able to achieve a critical level of market share to become profitable in this indication and or in additional planned indications.

**Employee risk.** Lineage management is new, with a new CEO and CFO. BioTime's success of the company will depend, to a great extent, upon the experience, abilities and continued services of its senior officers, sales staff, and key scientific personnel.

**Financial risk.** The company may need to raise capital in the marketplace relatively soon, and there can be no assurances that the company will be able to successfully raise capital and do so on favorable terms.

**Intellectual property risk.** The company may have to defend its patents and technical know-how, and there can be no assurances that the patents will not be infringed or will be held as valid if challenged, and the company may infringe on third party's patents.

**Reimbursement and insurance payment risk.** Insurance payment for products may be an additional hurdle for adoption.

**Subsidiary Risk.** We assume there is value in the ownership of AGEX and Oncycte, but we are not forecasting or modeling the value of these minority-owned companies.

**Exhibit 7. Income Statement.**

| Biotime: Income Statement (\$000)                 |       |                 |                 |                |                |                |                |                 |                 |                 |                  |                  |                  |                  |                  |                  |                  |
|---|-------|-----------------|-----------------|----------------|----------------|----------------|----------------|-----------------|-----------------|-----------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| YE December 31                                    | 2017A | 2018A           | 2019E           | 1Q20E          | 2Q20E          | 3Q20E          | 4Q20E          | 2020E           | 2021E           | 2022E           | 2023E            | 2024E            | 2025E            | 2026E            | 2027E            | 2028E            | 2029E            |
| Spinal Cord Injury Therapy                        |       |                 |                 | -              | -              | -              | -              | -               | -               | 2,866           | 11,695           | 17,895           | 30,424           | 46,554           | 94,979           | 129,184          | 130,476          |
| Dry Macular Degeneration                          |       |                 |                 |                |                |                |                |                 |                 |                 | 674,532          | 1,030,069        | 1,396,272        | 1,772,071        | 2,156,441        | 2,600,414        | 2,971,902        |
| Renevia   |       |                 |                 |                |                |                |                |                 | 542             | 1,504           | 12,034           | 17,327           | 23,581           | 27,067           | 27,065           | 27,062           | 26,791           |
| <b>Net revenue</b>                                |       |                 |                 |                |                |                |                |                 |                 | <b>2,866</b>    | <b>686,226</b>   | <b>1,047,963</b> | <b>1,426,697</b> | <b>1,818,625</b> | <b>2,790,530</b> | <b>2,729,598</b> | <b>3,102,378</b> |
| <b>Grant Revenues</b>                             |       | 3,572           | 3,608           | 838            | 875            | 911            | 1,020          | 3,644           | 3,680           | 3,717           | 3,754            | 3,792            | 3,830            | 3,868            | 3,907            | 3,946            | 3,985            |
| Royalties from Product Sales and license fees     |       | 312             | 315             | 73             | 76             | 80             | 89             | 318             | 321             | 325             | 328              | 331              | 335              | 338              | 341              | 345              | 348              |
| Subscription & Advertisement Revenues             |       | 691             | 698             | 162            | 169            | 176            | 197            | 705             | 712             | 719             | 726              | 734              | 741              | 748              | 756              | 763              | 771              |
| Sales of Research Products & Services             |       | 333             | 336             | 78             | 82             | 85             | 95             | 340             | 343             | 347             | 350              | 353              | 357              | 361              | 364              | 368              | 372              |
| <b>Total Revenue</b>                              |       | <b>4,908</b>    | <b>4,957</b>    | <b>1,152</b>   | <b>1,202</b>   | <b>1,252</b>   | <b>1,402</b>   | <b>5,007</b>    | <b>5,057</b>    | <b>7,973</b>    | <b>691,385</b>   | <b>1,053,173</b> | <b>1,431,959</b> | <b>1,823,939</b> | <b>2,795,898</b> | <b>2,735,019</b> | <b>3,107,853</b> |
| Cost of Goods (sales)                             |       | (302)           | (289)           | -              | -              | -              | -              | -               | -               | (831)           | (192,143)        | (261,991)        | (342,407)        | (327,352)        | (446,485)        | (409,440)        | (465,357)        |
| Research & Development                            |       | (20,955)        | (16,962)        | (3,121)        | (3,257)        | (3,392)        | (3,799)        | (13,570)        | (13,841)        | (17,993)        | (26,990)         | (37,786)         | (38,542)         | (39,312)         | (40,099)         | (40,901)         | (41,719)         |
| Acquired in Process Research & Development        |       | (800)           |                 |                |                |                |                |                 |                 |                 |                  |                  |                  |                  |                  |                  |                  |
| General & Administrative                          |       | (24,726)        | (23,027)        | (4,237)        | (4,421)        | (4,605)        | (5,158)        | (18,422)        | (33,159)        | (66,317.76)     | (66,981)         | (67,651)         | (68,327)         | (69,011)         | (69,701)         | (70,398)         | (71,102)         |
| <b>Total Expenses</b>                             |       | <b>(46,481)</b> | <b>(40,057)</b> | <b>(7,358)</b> | <b>(7,678)</b> | <b>(7,998)</b> | <b>(8,958)</b> | <b>(31,991)</b> | <b>(47,000)</b> | <b>(65,142)</b> | <b>(286,114)</b> | <b>(367,428)</b> | <b>(449,276)</b> | <b>(435,675)</b> | <b>(556,284)</b> | <b>(520,738)</b> | <b>(578,177)</b> |
| Loss from Operation                               |       | (41,795)        | (35,207)        | (6,206)        | (6,476)        | (6,746)        | (7,556)        | (26,985)        | (41,943)        | (77,169)        | 405,270          | 685,746          | 982,683          | 1,388,264        | 2,239,614        | 2,214,281        | 2,529,676        |
| Interest Income (expense)                         |       | 711             | 1,278           |                |                |                |                |                 |                 |                 |                  |                  |                  |                  |                  |                  |                  |
| Gain on AgeX shares and deconsolidation of AgeX   |       | 81,726          | 39,768          |                |                |                |                |                 |                 |                 |                  |                  |                  |                  |                  |                  |                  |
| Gain on Sale equity method in Ascendance          |       |                 | 7,290           |                |                |                |                |                 |                 |                 |                  |                  |                  |                  |                  |                  |                  |
| Gain / Loss Oncocyte                              |       | (47,985)        | (27,781)        |                |                |                |                |                 |                 |                 |                  |                  |                  |                  |                  |                  |                  |
| Loss on Equity (Asterias)                         |       | (35,449)        |                 |                |                |                |                |                 |                 |                 |                  |                  |                  |                  |                  |                  |                  |
| Unrealized Gain on marketable equity securities   |       | (4,181)         | (5,028)         |                |                |                |                |                 |                 |                 |                  |                  |                  |                  |                  |                  |                  |
| Other Income (expenses) net                       |       | 1,158           | 2,583           |                |                |                |                |                 |                 |                 |                  |                  |                  |                  |                  |                  |                  |
| Total other income (expense), net                 |       | (1,315)         |                 |                |                |                |                |                 |                 |                 |                  |                  |                  |                  |                  |                  |                  |
| <b>Pretax Income</b>                              |       | <b>(47,130)</b> | <b>(6,789)</b>  | <b>(6,206)</b> | <b>(6,476)</b> | <b>(6,746)</b> | <b>(7,556)</b> | <b>(26,985)</b> | <b>(41,943)</b> | <b>(77,169)</b> | <b>405,270</b>   | <b>685,746</b>   | <b>982,683</b>   | <b>1,388,264</b> | <b>2,239,614</b> | <b>2,214,281</b> | <b>2,529,676</b> |
| Tax Benefit                                       |       |                 | (14,370)        |                |                |                |                |                 |                 |                 |                  |                  |                  |                  |                  |                  |                  |
| Net loss attributable to non-controlling interest |       | 794             | 24              |                |                |                |                |                 |                 |                 |                  |                  |                  |                  |                  |                  |                  |
| Taxes   |       | 346             | 991             |                |                |                |                |                 |                 |                 |                  |                  | 98,268           | 208,240          | 447,923          | 553,570          | 708,309          |
| <b>Tax Rate</b>                                   |       |                 |                 |                |                |                |                |                 |                 |                 |                  |                  | <b>10%</b>       | <b>15%</b>       | <b>20%</b>       | <b>25%</b>       | <b>28%</b>       |
| <b>GAAP Net Income (Loss)</b>                     |       | <b>(45,990)</b> | <b>(89,184)</b> | <b>(6,206)</b> | <b>(6,476)</b> | <b>(6,746)</b> | <b>(7,556)</b> | <b>(26,985)</b> | <b>(41,943)</b> | <b>(77,169)</b> | <b>405,270</b>   | <b>685,746</b>   | <b>884,414</b>   | <b>1,180,024</b> | <b>1,791,691</b> | <b>1,660,711</b> | <b>1,821,367</b> |
| <b>Total comprehensive loss</b>                   |       | <b>(45,990)</b> | <b>(89,184)</b> | <b>(6,206)</b> | <b>(6,476)</b> | <b>(6,746)</b> | <b>(7,556)</b> | <b>(26,985)</b> | <b>(41,943)</b> | <b>(77,169)</b> | <b>405,270</b>   | <b>685,746</b>   | <b>884,414</b>   | <b>1,180,024</b> | <b>1,791,691</b> | <b>1,660,711</b> | <b>1,821,367</b> |
| <b>GAAP-EPS</b>                                   |       | <b>(0.36)</b>   | <b>(0.63)</b>   | <b>(0.03)</b>  | <b>(0.03)</b>  | <b>(0.03)</b>  | <b>(0.03)</b>  | <b>(0.12)</b>   | <b>(0.17)</b>   | <b>(0.30)</b>   | <b>1.55</b>      | <b>2.61</b>      | <b>3.35</b>      | <b>4.45</b>      | <b>6.73</b>      | <b>6.22</b>      | <b>6.79</b>      |
| GAAP-EPS (Dil)                                    |       | (0.44)          | (0.63)          | (0.03)         | (0.03)         | (0.03)         | (0.03)         | (0.13)          | (0.23)          | (0.17)          | (0.04)           | 0.08             | 0.32             | 0.60             | 0.87             | 1.12             | 1.12             |
| Wgtd Avg Shrs (Bas)                               |       | 126,903         | 145,815         | 202,667        | 224,694        | 226,941        | 229,210        | 220,878         | 252,306         | 260,840         | 261,884          | 262,934          | 263,987          | 265,044          | 266,106          | 267,172          | 268,242          |
| Wgtd Avg Shrs (Dil)                               |       | 126,926         | 145,815         | 177,667        | 219,444        | 221,638        | 223,855        | 210,651         | 269,460         | 285,584         | 286,728          | 287,877          | 289,030          | 290,188          | 291,351          | 292,518          | 293,690          |

Source: Dawson James estimates.

Companies mentioned in this report:

Asterias (AST)

AgeX (AGX)

Oncocyte (OCS)

Juvenescence (private)

**Important Disclosures:**

**Price Chart:**



Price target and ratings changes over the past three years:

- Initiated – Buy – February 7, 2019 – Price Target \$6.00
- Updated – May 28, 2019 – Price Target \$6.00
- Updated – August 12, 2019 – Price Target \$6.00
- Updated – September 19, 2019 – Price Target \$6.00
- Updated – October 15, 2019 – Price Target \$6.00
- Updated – January 9, 2020 – Price Target \$6.00

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|----------------------------|------------------|------------|--------------------|-------------|
|                            | # of Companies   | % of Total | # of Companies     | % of Totals |
| Market Outperform (Buy)    | 26               | 90%        | 3                  | 12%         |
| Market Perform (Neutral)   | 3                | 10%        | 0                  | 0%          |
| Market Underperform (Sell) | 0                | 0%         | 0                  | 0%          |
| Total                      | 29               | 100%       | 3                  | 10%         |

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